UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,088	05/30/2006	Tokumi Kobayashi	P30048	1724

52123 7590 06/08/2010

GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER	
RAO, SHEELA S	

ART UNIT	PAPER NUMBER
2123	

NOTIFICATION DATE	DELIVERY MODE
06/08/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary	Application No.	Applicant(s)	
	10/596,088	KOBAYASHI, TOKUMI	
	Examiner	Art Unit	
	Sheela Rao	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 March 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24,25,27-30,32,33,35,36,38,40,41 and 45-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24,25,27-30,32,33,35,36,38,40,41 and 45-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office action is in response to papers filed on 1 March 2010.

2. Claims 24-25, 27-30, 32-33, 35-36, 38, 40-41 and 45-53 are pending and presented for examination.

Response to Amendment

3. The rejection of claims 24-25, 27, 32, 36, 38, 45-49, 51 and 53 under 35 USC §103(a) as being unpatentable over US Patent Application Publication No. US 2001/0021265 A1 to Wilson et al. in view of US Patent No. US 6,887,723 B1 to Ondricek et al. is maintained and has been restated below including the amendments made to the claims.

4. The rejection of claims 28-30, 33, 35, 40-41, 50 and 52 under 35 USC §103(a) as being unpatentable over US Patent Application Publication No. US 2001/0021265 A1 to Wilson et al. in view of US Patent No. US 6,887,723 B1 to Ondricek et al. and further in view of US Patent Application Publication No. US 2002/0103563 A1 to Izawa et al. is maintained and has been restated below including the amendments made to the claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 24-25, 27, 32, 36, 38, 45-49, 51 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication No. US 2001/0021265 A1 to Wilson et al. in view of US Patent No. US 6,887,723 B1 to Ondricek et al.

The reference of prior art by Wilson et al. (hereinafter referred to as "Wilson") teaches of a method for assembling integrated circuit devices which includes the elements of the instant invention as stated herewith.

Claims 45, 46, 47, 48, 49, 51 and 53 are directed to a circuit substrate production method or system that comprise the production, by the substrate manufacturer, of a multi-piece substrate which includes a plurality of substrate sheets, with each substrate sheet comprising a plurality of substrate pieces, wherein the multi-piece substrate is to be separated into a plurality of pieces at one or each of a plurality of separation levels (taught by Wilson in paragraph [0008], wherein dicing of the wafers is explained); the multi-piece substrate is configured by the substrate manufacturer to include an information recording portion that includes information related to the multi-piece substrate, wherein each sheet is configured with an information recording portion that includes information related to the entire substrate and information related to the identification of the substrate sheet and where each substrate piece is configured with an information recording portion that includes information related to the entire multi-piece substrate, to a substrate sheet and piece; recording by the substrate manufacturer on the information recording portions referenceable management and

manufacturing information related to the substrate manufacturer and the mounting manufacturer; and delivering the multi-piece substrate board to the mounting manufacturer. Wilson teaches updateable/recordable and storable information regarding identification, management and manufacturing of the substrates in paragraph [0033] and in paragraphs [0020-0023] where how the information is recorded and updated throughout the assembly process is explained. With regard to the limitations of the recording means and read-out means as claimed by claim 47, Wilson teaches the use of bar codes or OCR codes for recording the identification information and uses bar code readers and/or OCR code readers for reading the stored information in paragraph [0037]. Wilson states in paragraph [0033] that both the carriers and the IC device comprise ID codes to identify their respective locations and the processing machines. Although the reference of prior art by Wilson teaches much of the limitations of the instant invention, Wilson fails to specifically point out the information in the information recording portion as being configured with information related to the substrate, sheet, and piece, i.e. the hierarchy of the devices including information on the recording portions, for this reason the prior art of Ondricek et al. (hereinafter referred to as "Ondricek") is relied upon. As depicted in Fig. 13A, the carrier or sheet (item 130) and the die or piece (item 120) include identification code ID which comprises information identifying the specific substrate as explained in column 10 at lines 53-67. When the teachings of Ondricek is combined with that of Wilson, the carrier and die, i.e. board and piece, include identification codes for identifying and holding information just as the sheet and piece of Ondricek is stated as doing, a hierarchy as claimed is presented.

The carrier of Wilson being the board while the carrier and die of Ondricek being the sheet and piece as per the instant claim language allow for each of the elements to comprise an identification means including information recording portions, EEPROM as present in the Ondricek invention, on the circuit element itself. The teaching of the hierarchy as per the claim limitations is interpreted as the substrate being taught by Wilson while the sheet and piece are taught in the Ondricek reference. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the teachings of Wilson with that of Ondricek so as to enable a tracking label or identification code that permits the recording of information upon each level of the assembly of integrated circuits so that the elements can be tracked, located, handled or identified as a whole or individually without loss of any relevant information as stated by Ondricek in col. 1:ll. 21-24. As per the amendment where the steps of producing, configuring, and recording are now stated as being carried through by a substrate manufacturer, the prior art by Wilson discloses the claimed invention as being assembled by a manufacturer but does not specifically state one as a substrate manufacturer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have had the manufacturer, whether it be a substrate manufacturer or otherwise, to have prepared the substrate pieces to include the information data as claimed, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together and/or constructing a formerly integral structure in various elements as the steps of integrating and/or

separating are well known, obvious and involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893). *Nerwin v. Erlichman*, 168 USPQ 177, 179.

Claim 24 requires the information to be recorded as a two-dimensional code on the information recording portions. Wilson teaches this in paragraph [0023] wherein the use of optically-readable code, a two-dimensional code, is stated.

Claims 25, 32, 36 and 38 cite that in addition to the identification information of each of the substrates themselves, information related to a production step at the substrate manufacturer and information related to a production step at the mounting manufacturer are recorded on the information recording portions at the substrate manufacturer. In paragraph [0038], information related to the equipment and the substrates are stated as being included in the identification information.

Claim 27 is directed to the mounting of the substrate, specifically, at the mounting manufacturer, substrate mounting is performed based on the information which is read from the information recording portions and is related to the production step. Wilson teaches the mounting process as the die attach step in paragraph [0035].

7. Claims 28-30, 33, 35, 40-41, 50 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication No. US 2001/0021265 A1 to Wilson et al. in view of US Patent No. US 6,887,723 B1 to Ondricek et al. as applied to claims 45-49, 51 and 53 above, and further in view of US Patent Application Publication No. US 2002/0103563 A1 to Izawa et al.

The limitations as taught by Wilson and Ondricek are stated heretofore.

Claims 50, 28 and 41 include the elements of claim 45 and further include a transmitting production information and identification information step wherein production step information about each of the substrates and the identification information read from the information recording portions are combined in the substrate manufacturer and the mounting manufacturer, are transmitted to a data processing center connected via a communication network, and are data-processed in the data processing center to thereby construct various databases, and wherein the substrate manufacturer and the mounting manufacturer perform required processing by retrieving required data from the databases via the communication network. The prior arts of Wilson and Ondricek teach the elements of the claimed limitations as aforementioned but fall short of teaching the information being transmitted to a data processing center via a communications network. As shown in Figs. 1 and 6 and stated in the abstract, the reference of Izawa et al. (hereinafter referred to as "Izawa") teach that a computer environment is used wherein a database stores processing conditions and the computers of the equipment and manufacturers are able to communicate over a communication network. As for the transmission of information from both a substrate manufacturer and a mounting manufacturer, the decision of who transfers and what is transferred is wholly dependent upon the implementation of the system and the preference of the user. Moreover it is well known that with the presence of a communications link and a network, the amount and type of information that can be transferred is vast. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used network communication capabilities as per

Izawa with the method and system of Wilson and Ondricek so as to enable direct transmission of data and information in a more efficient manner and to provide information automatically as stated in the abstract of Izawa.

Claims 29 and 33 further defines the steps of claims 46 and 47, wherein production step information about each of the substrates and the identification information read from the information recording portions are combined in the substrate manufacturer and the mounting manufacturer, are transmitted to a data processing center connected via a communication network, and are data-processed in the data processing center to thereby construct various databases, and wherein the substrate manufacturer and the mounting manufacturer perform required processing by retrieving required data from the databases via the communication network. The prior arts of Wilson and Ondricek teach the elements of the claimed limitations as aforementioned but fail to teach that the information is processed by a data processing center and has the ability to build other databases. As stated in paragraphs [0017] and [0050], Izawa teaches a computer environment wherein a database is used and it is well known that numerous databases can be built to store and retrieve a variety of data processing conditions. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used multiple databases as is well known with the inventions of Wilson, Ondricek and Izawa so as to increase the ability of collecting more information and to provide the information automatically as stated in paragraph [0050] of Izawa.

Claims 30, 35, and 40 state the databases contain information about production histories at both the substrate manufacturer and the mounting manufacturer. Izawa teaches the use of production histories as described in the abstract and paragraph [0049].

Claim 52 is directed to a circuit substrate production method in which a substrate produced by a substrate manufacturer is delivered to a subsequent mounting manufacturer for mounting a component at the mounting manufacturer to thereby produce a circuit substrate, wherein when the substrate manufacturer records identification information on a substrate, which has an information recording portion configured such that identification information containing information related to management and manufacturing in each of the manufacturers is referenceable and recordable, and delivers the substrate to the mounting manufacturer, production step information related to the substrate and the identification information read from said information recording portion are combined at the substrate manufacturer and the mounting manufacturer, are transmitted to a data processing center connected via a communication network, and are data-processed in the data processing center to thereby construct various databases, and in that the substrate manufacturer and the mounting manufacturer perform required processing by retrieving required data from the databases via the communication network. The limitations of claim 52 are parallel to that of claim 45 as taught above. As per the amendment where the steps of reading and combining, transmitting are now stated as being carried through by a mounting manufacturer, the prior art by Wilson discloses the claimed invention as being assembled

by a manufacturer but does not specifically state one as a mounting manufacturer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have had the manufacturer, whether it be a substrate manufacturer or mounting manufacturer or otherwise, to have prepared the substrate pieces to include the information data as claimed, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together and/or constructing a formerly integral structure in various elements as the steps of integrating and/or separating are well known, obvious and involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893). *Nerwin v. Erlichman*, 168 USPQ 177, 179. In addition, claim 52 includes the limitations of claim 28 wherein the production information being transmitted to a data processing center via a communication network is stated. However, the prior arts of Wilson and Ondricek teach the elements of the claimed limitations as aforementioned but fail to teach the information being transmitted to a data processing center via a communications network. As shown in Figs. 1 and 6 and stated in the abstract, the reference of Izawa teaches a computer environment is used wherein a database stores processing conditions and the computers of the equipment and manufacturers are able to communicate over a communication network. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used network communication capabilities as per Izawa with the method and system of Wilson and Ondricek so as to enable direct transmission of data and information in a more efficient manner and to provide information automatically as stated in the abstract of Izawa.

Response to Arguments

8. Applicant's arguments filed on March 1, 2010 have been fully considered but they are not persuasive.

Applicant's response begins by stating that the reference of prior art fails to teach the added element of "configuring, **by the substrate manufacturer**, the multi-piece substrate to include ... information ..." (emphasis added). Examiner disagrees since the reference of prior art clearly teaches that the steps as claimed are carried through by a manufacturer. The inclusion of a substrate manufacturer in particular is not patentably different since manufacturers are well known to provide the necessary steps to produce a product.

The next argument is directed to the lack of Wilson's disclosing of a substrate manufacturer producing or configuring the multi-piece substrate with information recording portions as being "distinctly different" from that of the limitations of instant claim 45. As stated above in the rejection of the claim, paragraphs [0032-0033] teach the identifying of each of the IC devices and the assigning and imprinting of an identification number. Furthermore, as recited in the rejection above, the prior art of Ondricek is used to teach the "multi-piece substrate" including an information recording portion as depicted in Fig. 13A where item 120 is interpreted as the piece or die while item 130 is considered the sheet or carrier, and as shown both include an id/tracking label.

Applicant continues with the argument that Ondricek teaches away from Applicant's invention since the reference states in column 10, lines 44-45, "[a]lthough

tracking abilities exist on the wafer level, no such ability is currently available on a die level". Applicant seems to have taken this statement of Ondricek out of context because Ondricek continues by stating "[h]owever, by placing a tracking label on the carrier of the present invention, information on the die level may be maintained." Ondricek clearly includes the ability of tracking at the die level as well. Furthermore, as aforementioned in Fig. 13A, the die or piece is depicted as including an identification means.

Then Applicant argues that neither Wilson or Ondricek discloses "recording the specific management and manufacturing information on the substrate information recording portions of the substrate" as per claims 51 and 53. Examiner disagrees, since the recording of specific elements of information does not dictate allowability of an invention. The details of the information recorded are based upon and determined by the design or manufacturing of the product and producer. The type of information recorded does not necessitate patentability.

The next argument is directed to the reference of prior art to Izawa with regard to claim 50. Applicant states that the cited sections of Izawa "do not disclose the transmission of information from both a substrate manufacturer and from a mounting manufacture to a data processing center". Paragraph [0049] of the reference of Izawa explains how information on the substrates/devices/masks is stored in a management computer (item 107) which is then transmitted over an Ethernet network for data communication with other equipment; thus, Izawa clearly teaches the transmission of information from a manufacturer to other equipment via data processing means.

Furthermore, the inclusion of invention specific information does not necessitate patentability as the type of information recorded or transmitted is based upon the design or method of a product or manufacturer.

Lastly, Applicant argues that the obviousness rational used by the Office is improper and "goes significantly beyond the knowledge ... of one of ordinary skill". Examiner disagrees as nothing that is beyond the knowledge and/or skill level of a skilled artisan is being accomplished and the limitations of the instant invention along with the references of prior art are well within the means of one of ordinary skill in the arts.

For the reasons stated above, the limitations of the instant invention are taught and/or fairly suggested by the prior arts of record; thereby, rendering the instant claims unpatentable.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela Rao whose telephone number is (571) 272-3751. The examiner can normally be reached Monday - Wednesday from 9:00 am to 3:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez, can be reached on (571) 272-3753. The fax number for the organization where this application or any proceeding papers has been assigned is (571) 273- 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. It should be noted that status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see **http:// pair-direct.uspto.gov**. Should any questions arise regarding access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sheela Rao/
Examiner, Art Unit 2123
June 2, 2010

/KIDEST BAHTA/
Primary Examiner, Art Unit 2123